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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,108	07/20/2001	Takashi Yamanaka	S004-4348	1685

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06/24/2004

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EXAMINER

LI, SHI K

ART UNIT PAPER NUMBER

2633

DATE MAILED: 06/24/2004

Handwritten number 5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,108

Applicant(s)

YAMANAKA ET AL.

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2001 and 05 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 27 July 2000. It is noted, however, that applicant has not filed a certified copy of the 2000-227380 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7-9 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 7 recites the limitation "the same optical characteristics" in lines 2-3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 8 recites the limitation "the same optical parts" in line 4 of the claim. There is insufficient antecedent basis for this limitation in the claim. Claim 8 recites the limitation "the driving means located before and after the light beam" in line 3 of the claim. Since no order or sequence has been given, "before" and "after" carry no meaning.

6. Claim 9 recites the limitation "the same optical parts" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 14 recites the limitation "before the driving" in line 14 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

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8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 7-10 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Yokoyama et al. (U.S. Patent 6,094,293).

Regarding claim 1, Yokoyama et al. discloses in FIG. 4B an optical communication device comprising fiber 60A for propagating a light beam through a space to fiber 60B, optical switches 2A and 2B with movable parts to an interrupting position of the light beam in a series direction with the light beam. Yokoyama et al. teaches in FIG. 7A structure of a switch comprising coils 76A and 76B for driving the optical mirror and control circuit for controlling an operation of the coils.

Regarding claim 7, switches 2A and 2B have same optical characteristics.

Regarding claim 8, switch 2B is between switches 2A and 2C, and switch 2C is between switch 2B and 2D.

Regarding claim 9, the switches 2A, 2B 2C and 2D are oriented in a zigzag shape.

Regarding claim 10, Yokoyama et al. teaches in col. 24, line 63-64 to use piezoelectric actuator as driving means.

Regarding claim 17, the switches of Yokoyama et al. are simultaneously driven for switching the light beams.

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10. Claims 1-3, 5-6 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukushima (U.S. Patent 5,805,759).

Regarding claim 1, Fukushima discloses in FIG. 9 an optical equalizer comprising diffraction grating 22 for propagating a light beam through a space, a plurality of movable attenuating plates 6 arranged in series direction with the light beam, and driver 32. Fukushima further teaches in FIG. 15 a process for controlling the optical equalizer.

Regarding claims 2-3 and 5, Fukushima teaches in col. 11, lines 23-27 that each attenuating plate can have arbitrary wavelength characteristics to obtain arbitrary shaped wavelength characteristics as illustrated in FIG. 10 and FIG. 11.

Regarding claim 6, the attenuating plates interrupt the light beam.

Regarding claim 17, Fukushima uses a single driver to simultaneously drive the attenuating plates.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canoglu et al. (U.S. Patent 6,407,838 B1) in view of Glance (U.S. Patent 6,498,682 B2).

Canoglu et al. discloses in FIG. 1 an optical communication device comprising GRIN lens collimator 18 for propagating a light beam through a space to GRIN lens collimator 44, a plurality of movable filters to an interrupting position of the light beam in a series direction with

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the light beam, driving means 36 for moving the filters. Regarding claim 1, the difference between Canoglu et al. and the claimed invention is that Canoglu et al. does not teach a driving control means. Glance teaches in col. 6, line 66-col.7, line 5 to use a microprocessor to control a driving means of filter in response to signals from a human operator or signals from an automatic process. One of ordinary skill in the art would have been motivated to combine the teaching of Glance with the optical communication device of Canoglu et al. because a microprocessor provides convenient interfaces to operator or other equipment and facilitates the control process. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a microprocessor to control the driving means, as taught by Glance, in the optical communication device of Canoglu et al. because a microprocessor provides convenient interfaces to operator or other equipment and facilitates the control process.

Regarding claims 2 and 3, it is obvious that filter 30 and filter 34 are different to drop off different wavelengths.

Regarding claim 6, the filters of Canoglu et al. interrupt the light beam.

13. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima (U.S. Patent 5,805,759) in view of Gagliardi et al. ("Optical Communications", 2nd edition by Gagliardi et al., John Wiley & Sons, 1995, pp 56-59).

Fukushima has been discussed above in regard to claims 1-3 and 5-6. The difference between Fukushima and the claimed invention is that Fukushima does not teach absorption attenuator. Gagliardi et al. teaches in Section 2.5 optical filters. Gagliardi et al. teaches in p. 56, last paragraph absorption filters. One of ordinary skill in the art would have been motivated to combine the teaching of Gagliardi et al. with the optical equalizer of Fukushima because

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absorption filters are easy to manufacture and inexpensive. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use absorption filters, as taught by Gagliardi et al., in the optical equalizer of Fukushima because absorption filters are easy to manufacture and inexpensive.

14. Claims 11-12, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (U.S. Patent 6,094,293) in view of Wakabayashi et al. (U.S. Patent 6,469,421 B1).

Yokoyama et al. has been discussed above in regard to claims 1, 7-10 and 17. Regarding claim 11, the difference between Yokoyama et al. and the claimed invention is that Yokoyama et al. does not teach the details of the piezoelectric actuator. Wakabayashi et al. teaches in FIG. 17 a piezoelectric actuator with vibrator 6 and moving body 7 frictionally driven by the vibrator via friction material 8. One of ordinary skill in the art would have been motivated to combine the teaching of Wakabayashi et al. with the optical communication device of Yokoyama et al. because the piezoelectric actuator of Wakabayashi et al. is stable and simple in production process (see col. 2, lines 45-48). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the piezoelectric actuator of Wakabayashi et al. in the optical communication device of Yokoyama et al. because it is stable and simple in production process.

Regarding claim 12, the piezoelectric actuator of Wakabayashi et al. is of a rotating type.

Regarding claim 14, it is obvious that an initial configuration may be desirable and a preliminary signal can be used to set up such initial configuration in the modified optical communication device of Yokoyama et al. and Wakabayashi et al.

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Regarding claim 16, Yokoyama et al. teaches in FIG. 1B a supporting member 4 for supporting the movable part.

15. Claims 10-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima (U.S. Patent 5,805,759) in view of Wakabayashi et al. (U.S. Patent 6,469,421 B1).

Fukushima has been discussed above in regard to claims 1-3 and 5-6. Regarding claims 10-11, the difference between Fukushima and the claimed invention is that Fukushima does not teach to use piezoelectric actuator. Wakabayashi et al. teaches in FIG. 17 a piezoelectric actuator with vibrator 6 and moving body 7 frictionally driven by the vibrator via friction material 8. One of ordinary skill in the art would have been motivated to combine the teaching of Wakabayashi et al. with the optical equalizer of Fukushima because the piezoelectric actuator of Wakabayashi et al. is stable and simple in production process (see col. 2, lines 45-48). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the piezoelectric actuator of Wakabayashi et al. in the optical equalizer of Fukushima because it is small, stable and simple in production process.

Regarding claim 12, the piezoelectric actuator of Wakabayashi et al. is of a rotating type.

Regarding claim 14, it is obvious that an initial configuration may be desirable and a preliminary signal can be used to set up such initial configuration in the modified optical equalizer of Fukushima and Wakabayashi et al.

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (U.S. Patent 6,094,293) in view of Blanding et al. (U.S. Patent 6,034,466).

Yokoyama et al. has been discussed above in regard to claims 1, 7-10 and 17. The difference between Yokoyama et al. and the claimed invention is that Yokoyama et al. does not

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teach the details of the piezoelectric actuator. Blanding et al. teaches in FIG. 6 and FIG. 7 a direct acting piezoelectric actuator. One of ordinary skill in the art would have been motivated to combine the teaching of Blanding et al. with the optical communication device of Yokoyama et al. because the piezoelectric actuator of Blanding et al. has high efficiency, minimum hysteresis, friction and inertia (see col. 2, lines 27-29). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the piezoelectric actuator of Blanding et al. in the optical communication device of Yokoyama et al. because it has high efficiency, minimum hysteresis, friction and inertia.

17. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (U.S. Patent 6,094,293) in view of Iino et al. (U.S. Patent 6,144,140).

Yokoyama et al. has been discussed above in regard to claims 1, 7-10 and 17. The difference between Yokoyama et al. and the claimed invention is that Yokoyama et al. does not teach a driving circuit for the piezoelectric actuator. Iino et al. teaches a self-excited oscillating circuit for piezoelectric actuator in FIG. 3. One of ordinary skill in the art would have been motivated to combine the teaching of Iino et al. with the optical communication device of Yokoyama et al. because self-exciting circuit is simple (see col. 1, line 13). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a self-excited oscillating circuit for driving the piezoelectric actuator, as taught by Iino et al., in the optical communication device of Yokoyama et al. because it is simple.

Conclusion

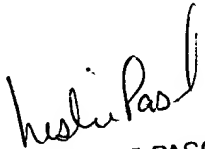
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl


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PRIMARY EXAMINER